Update on the National Air Toxics Trends Stations Proficiency Testing Program

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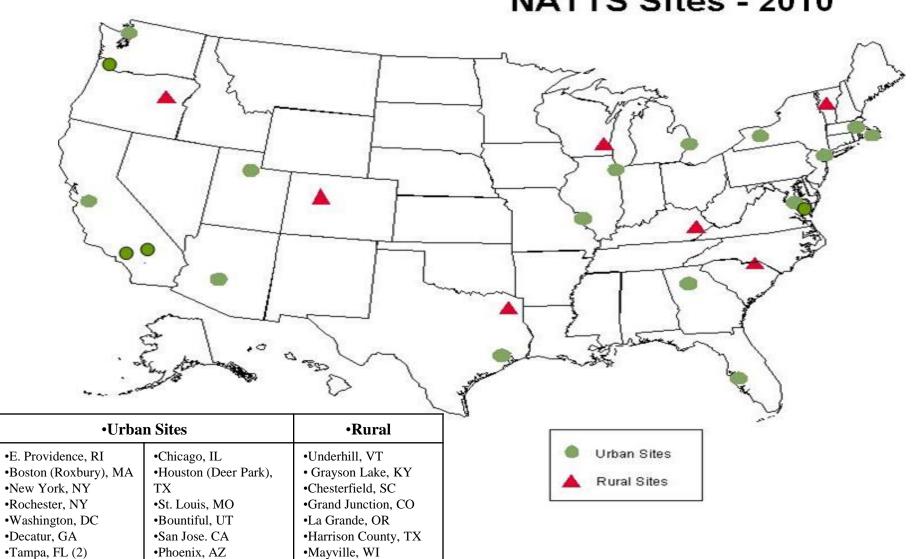
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Outline

- The NATTS Program
 - The NATTS sites
 - Data Quality Objectives
 - Measurement Quality Objectives
- Meeting our Stated Objectives
 - Precision
 - Completeness
 - Detectability
- Proficiency Testing: A New Approach

NATTS Sites - 2010



•Detroit, MI

•Los Angeles, CA

•Rubidoux, CA

•Seattle WA

•Richmond, VA

•Portland, OR



NATTS QA Objective

Data Quality Objective (DQO) is in support of the GPRA goal of reduction of Air Toxics by 75% (1993 levels) by 2010:

"To be able to detect a 15% difference (trend) between two successive 3-year annual mean concentrations within acceptable levels of decision error."

To meet this DQO we need:

- 1-in-6 day sampling frequency with at least an 85% quarterly completeness
- Precision controlled to a Coefficient of Variance (CV) of no more than 15%
- Detectability based on 2001 Pilot Study Minimum Detection Limits (MDLs)
- Lab bias for the data set of less than 25% measured using Proficiency testing (PT)

These are our Measurement Quality Objectives (MQOs)!

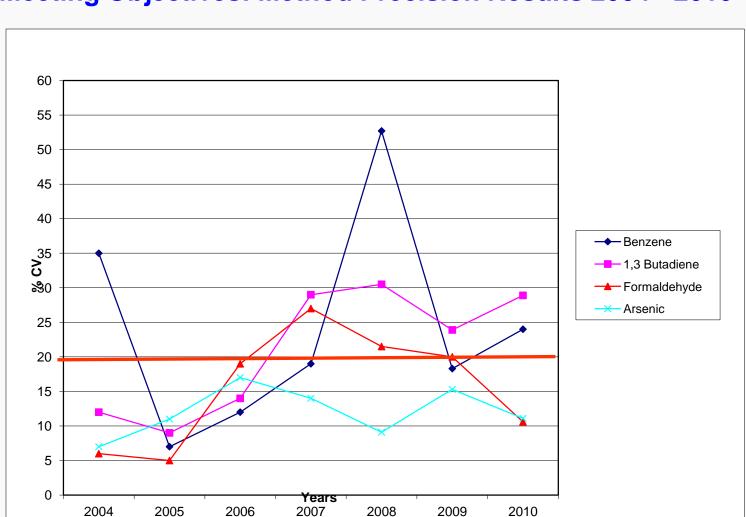


NATTS QA Program

Measurement Quality Objectives (MQOs)

Compound	Precision (CV)	Bias (Lab)	Detectability	Completeness
Arsenic	< 15%	< 25%	0.217 ng/m3	> 85%
Benzene	< 15%	< 25%	0.016 ug/m3	> 85%
1,3-Butadiene	< 15%	< 25%	0.013 ug/m3	> 85%
Formaldehyde	< 15%	< 25%	0.0074 ug/m3	> 85%

Meeting Objectives: Method Precision Results 2004 - 2010



Seven Year Average:

Benzene: 24%

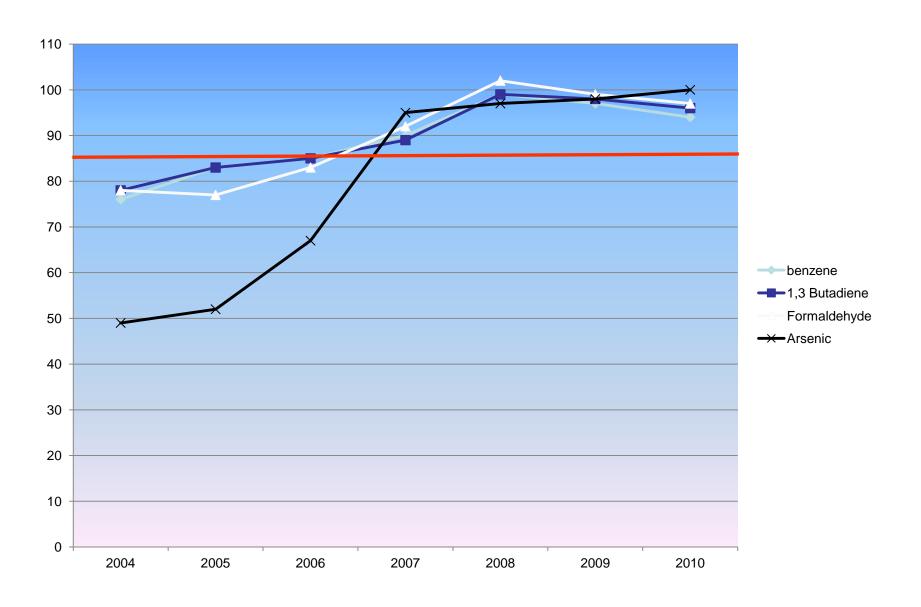
1,3 Butadiene 21%

Formaldehyde: 16%

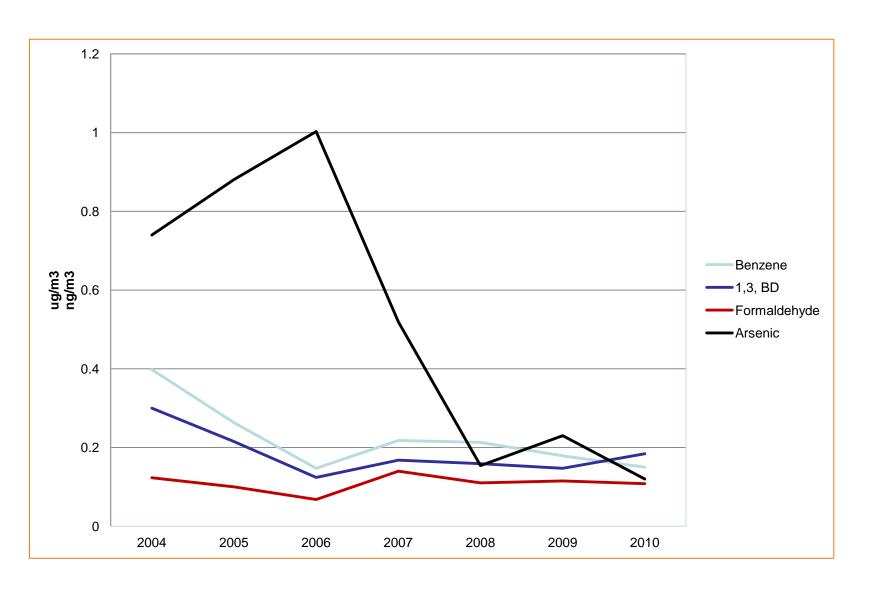
Arsenic: 12%

* Includes Data below MDL

Meeting Objectives: Data Completeness 2004 – 2010



Meeting Objectives: Method Detection Limits 2004 - 2010





Proficiency testing Program

- NATTS PT Program
 - Third-party, single blind spiked samples
 - Concentration ~ ambient air
 - Quarterly
 - Measurement quality objective (MQO): bias < 25%
 - > Fourth quarter of 2011: VOCs and carbonyls
 - > First Quarter of 2012: PAHs, metals, hex chrome



PT

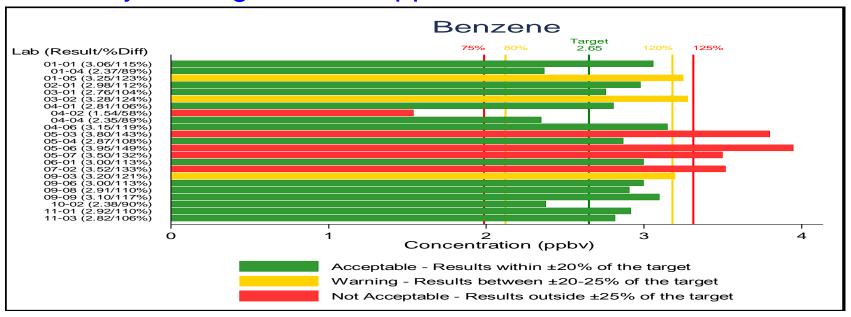
- Target value
 - Target value (T) is presently the mean of confirmatory analyses
 - Confirmatory analyses must have acceptably low bias compared to known spiked value (< 25% for VOCs; < 15% for carbonyls)
- PT Performance Assessment
 - MQO for bias < 25%
 - Acceptable: 0.8·T ≤ Result ≤ 1.2·T
 - Marginal: 0.75·T ≤ Result < 0.8·T OR 1.25·T ≥ Result > 1.2·T
 - Does not meet MQO: Result < 0.75-T OR Result > 1.25-T

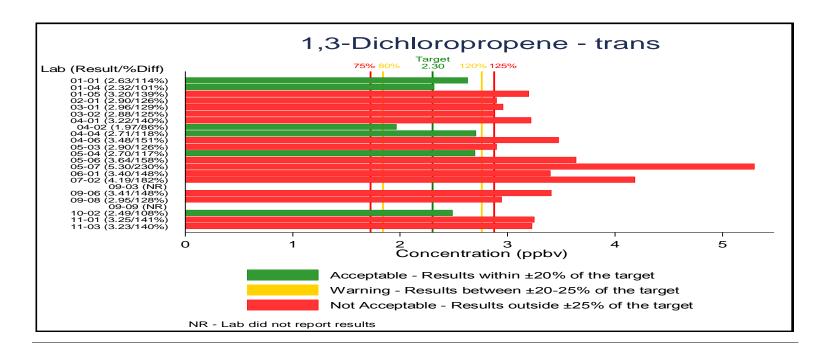


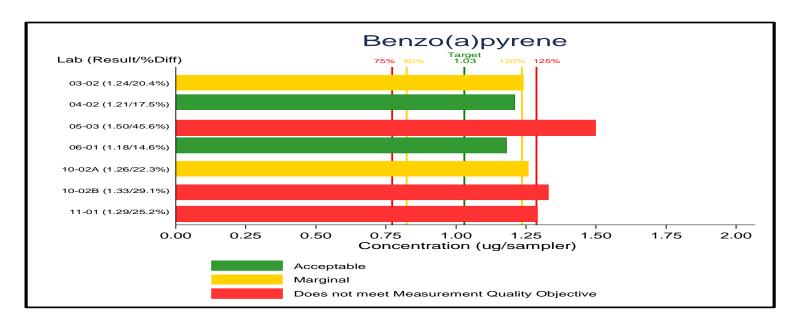
After initial results, we had Discussions with new Contractor:

- What is the "True" value of a PT
- Should it be the Generating Labs analysis?
- Should it the mean of the all NATTS lab results?
- Should it be a hybrid?
- •What are the implications of each?

If the generating lab's analytical value is off, it can skew the results If one labs results are off, it can skew the mean.









Summary

- Generated VOC and carbonyl PT samples in QTR4 of CY2011
 - 25 labs; 23 cans and 18 cartridges

VOCs		Carbonyls		VOCs	
Target = mean confirm		Target = mean confirm		Target = mean lab result	
Number	% of total	Number	% of total	Number	% of total
345	100	72	100	345	100
249	72	53	74	270	78
82	24	7	10	61	18
14	4	12	17	14	4
8.4%				2.7	7%
	Target = mo Number 345 249 82 14	Target = mean confirm Number % of total 345 100 249 72 82 24 14 4	Target = mean confirm Target = mean confirm Number % of total Number 345 100 72 249 72 53 82 24 7 14 4 12	Target = mean confirm Target = mean confirm Number % of total Number % of total 345 100 72 100 249 72 53 74 82 24 7 10 14 4 12 17	Target = mean confirm Target = mean confirm Target = mean confirm Number % of total Number % of total Number 345 100 72 100 345 249 72 53 74 270 82 24 7 10 61 14 4 12 17 14

- Should T be assigned as the mean lab value instead of the mean value of the confirmatory analyses?
 - » To be continued...



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Thanks!





Questions????